



## **WATER RESOURCES RESEARCH GRANT PROPOSAL**

**Project ID:** 2005ND76B

**Title:** Molecular Phylogeography of *Etheostoma Nigrum* in the Northern Midwest

**Project Type:** Research

**Focus Categories:** Conservation, Invasive Species, Ecology

**Keywords:** Phylogeography, microsatellites, population genetics, darters

**Start Date:** 03/01/2005

**End Date:** 02/28/2006

**Federal Funds:** \$10,100

**Non-Federal Matching Funds:** \$21,040

**Congressional District:** 1

**Principal Investigator:**

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**Abstract**

The genetic population structure of native fishes can be used to inform management decisions. For instance, management agencies often transplant fish, but such actions could lead to out-breeding depression. The population structure of fish in the upper mid-west is poorly understood. We will examine genetic population structure of the johnny darter (*Etheostoma nigrum*) in the upper mid-west. We will conduct a genetic survey of populations in the upper Missouri, upper Red River and Upper Mississippi River systems as well as small associated lakes. At least 30 individuals will be collected from each of 10 populations in North Dakota and Minnesota to evaluate genetic population structure. We will use PCR based microsatellite loci designed for a close congener of *E. nigrum* for this work. This work should provide managers with baseline data on the spatial relationship of fish in the upper mid-west.